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DDR Protocol Suite™ 2.50 Build 413 - Release Notes

Updated: February 27, 2014

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1. Overview

This Read Me file contains last-minute product information for the DDR Protocol Suite™ software for Microsoft Windows.
For full instructions on using the software and the hardware, please see the User's Manual and other documents provided with this product.

2. System Requirements

For optimal performance, it is recommended that the software is installed and operated on a host machine that is of a recent generation of personal computers architecture, and that at least the minimum requirements for memory, storage and display requirement are kept. However, the software could operate on some machines that are below the minimum requirements specified here, at the cost of slower performance of the system and limited usability of the software.

2.1. Software

Operating System:

- Windows 8.1 (x86 and x64), Windows Server 2012 R2 (x64), Windows 7 (x86 and x64), Windows Server 2008R2 (x64), Windows XP (x86).

- The latest Service Pack available for the Windows OS in use is required.
- It is recommended that the 64-bit Windows version of the Operating Systems is installed, as these allow using more RAM memory than the 32 bit ones.

Required for setup:
Microsoft Internet Explorer, version 6 or newer. To view the manuals, datasheets and other documents, you would need to install 'Adobe Acrobat Reader' (http://get.adobe.com/reader).

Note for Non-English Language Systems:
To load and save filenames with non-English (Unicode) characters, it is necessary that you correctly set the corresponding System Locale in the Operating System.

2.2. Hardware

Memory (RAM):

For improved performance of the software, it is recommended that 16GB of RAM is installed on the host machine. Memory as little as 2GB would still allow the software to function, but would impair its performance. For the best performance, it is recommended to have physical RAM at least twice the size of the recording buffer.

Non-volatile Storage (SSD or Hard Disk):

Storage space of 300MB is required for installing the DDR Protocol Suite™ software on the host machine. Additional storage space is needed for the operation of the software application and for storing recorded data in files. Please remember that storing large captured traces can result in multiple gigabytes of file sizes and can quickly fill your available storage space.

Display:

To take full advantage of the rich visualization and analysis of Teledyne LeCroy software it is recommended that the display is set to at least **1050** lines of vertical resolution with at least 24-bit color depth. The minimum requirement for the display is a resolution of 1024x768 with at least 16-bit color depth.

Connectivity:
USB 2.0 Hi-Speed or Full-Speed host interfaces. No specific hardware is required to view pre-recorded traces.

2.3. Supplemental Teledyne LeCroy Applications

CrossSync:
The CrossSync Application is included to allow you to control recording from more than one technology and/or Platform. It also adds the ability to synchronize the viewing of Traces in more than one application. Details on the requirements and usage may be found in the Cross Sync User Manual. This application is included without charge in the DDR Protocol Suite installation.

Note: Users of CrossSync:
If you run into a problem where the system says it cannot write the trace files to the disk, please check the following:

- The destination folder of the Trace File has write/create permissions for this capability. (Often this is NOT the case when a network file system is the target directory.)
- Try changing the Firewall Settings for DDR Protocol Suite to Public. This can be done through Windows Firewall or through whatever Firewall you are using.

3. Release Notes

3.1. What's New

- This is version 2.50 of the DDR Protocol Suite.
- New Features
    - Save SPD with Trace File
    - Last MRS Decoded shown in Real-Time Statistics
    - Data Pane in Waveform View
    - Bug Fixes

- This release supports the following Teledyne LeCroy products:
    - Kibra 380
        - Firmware version 1.16
        - IOHub BusEngine version 2.86
        - Main 480 DDR3 BusEngine version 2.62
    - Kibra 480
        - Firmware version 1.07
        - IOHub BusEngine version 2.86
        - Main 480 DDR3 BusEngine version 2.62
        - Main 480 DDR4 BusEngine version 2.63
    - Cross-Sync 2.31

- This release includes fixes for the following issues

Bug ID	Summary
DDR13348	Incorrect decoding of Encoded Quad CS commands in LRDIMM
DDR13152	Follow MRS calculation details need more information
DDR13151	Timing Calculator - when changing time units, Delta Time units should change to match
DDR13108	[Installation] USB Driver updates not automatically loaded
DDR13034	Crash message appear after quickly close DDRSuite upon launching it
DDR13068	Trace version in Do You Want To update This Trace File is different than version seen in Trace Info.
DDR13033	Protocol Violation Descriptions are confusing to the customers
DDR12922	DDR4 - Add cursor for V10 tRFC measured wrongly
DDR12886	[Hidden Mode] When DDR is running in the hidden mode, if the Kibra unit is disconnected, the application crashes
DDR12797	[Overlay Mode] Waveform view when under overlay mode does not allow the first signal to be expanded.
DDR12777	Hardware buffer overflowed on RTS
DDR12765	Performance increases in analysis processing
DDR12761	Sequence trigger after nCK value was reset after certain limit
DDR12749	Show the unit of timing violation value
DDR12714	User need to adjust the position of command before can see all information in tooltip
DDR12697	Goto next signal transition is missing signal transitions

DDR12695	Clock speed displayed in Wave form shows incorrect value
DDR12694	Signals to be able to drag and drop and the point where it selected
DDR12692	Make SPD Window non-Modal
DDR12688	Load Defaults function in not working in Preferences
DDR12660	Handle all Ref Clk + DDR capturing situations
DDR12626	[CrossSync] IOTA/DDR/PCIe combination does not work as expected.
DDR12322	Save SPD info in trace and in HTML file, allow user to propagate certain SPD elements to Memory Controller values
DDR10020	Words truncated, overlapped and misaligned in Win XP,7 and 8 with display scaling medium and large
DDR9431	Software shutdown automatically if multiple traces were opened
DDR9380	Add data view into waveform viewer
DDR6376	Show last decoded MRS in Real Time Stats

3.2. Known Issues

Power cycling the host under test while capturing may cause a corrupted trace file.

Bug Id	Summary
7653	Add Cross-Platform Automation API for DDR Protocol Suite
8625	Need to have ability to support mixed ranks in the configuration for DDR density
8899	SPD reads on some DIMMS misses first byte

General

- The External Trigger Out signal level is forced low at the beginning of each recording. This might cause false triggers on externally attached equipment.
- **Important note:** Windows 7 and Windows 8.1 user editable files (Samples, User Options, etc.) are stored in:

<drive letter>:\Users\Public\Documents\LeCroy\DDR Protocol Suite\...

This is due to those Operating Systems' policy that the Program Files (application) folders are read-only. Those files and folders are stored in the application folder on Windows XP.

Power On Procedure

1. Start the DDR Protocol Suite application.
2. Make sure the DDR Interposer(s) is/are attached securely to the Kibra unit.
3. Verify that either :
   - Interposers are not inserted into the system under test. **OR**
   - Interposers are inserted into the system under test AND power is OFF on the system under test.
4. Power On the Kibra unit and wait until the Phy's have completed initialization.
5. Power On the system under test.

3.3. API

Automation:

- Automation is not supported for User access in this release.

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4. Previous Releases

4.1. Release 2.40 Build 379 November 11, 2013

- This is version 2.40 of the DDR Protocol Suite.
- New Features
    - Advanced Search Capabilities
    - Performance Improvements
    - Bug Fixes

- This release supports the following Teledyne LeCroy products:
    - Kibra 380
        - Firmware version 1.16
        - IOHub BusEngine version 2.86
        - Main 380 BusEngine version 2.61
    - Kibra 480
        - Firmware version 1.06
        - IOHub BusEngine version 2.86
        - Main 480 DDR3 BusEngine version 2.61
        - Main 480 DDR4 BusEngine version 2.61
    - Cross-Sync 2.30

- This release includes fixes for the following issues

Bug ID	Summary
DDR9591	Analysis Speed-Up via multi-threading
DDR12525	Row Usage Report - Detail Button does not select the current Row
DDR12506	Row Usage Report - Double Click on row under "Cycle Report" tab, app appears to hang
DDR12382	Performance % in traffic summary
DDR12249	When the " Follow MRS" is checked trace shows invalid timing violations
DDR12200	BE Reports wrong initial states in DDR4 RDIMM (Mirrored Banks)
DDR12178	Need to clear MRS setting/Last state by bus reset
DDR12177	Parallel Ref-clk and DDR capture is not working properly when DDR clock is not present
DDR12175	When running RTS View - Detail View - make statistics display optional -
DDR12169	Change max allowed values of tRTPx to 31, tWRA to 63 as per customer request.
DDR12159	Recording option for DDRSuite appear twice if set through CrossSync
DDR12149	Add comment [address inverted] into listing viewer
DDR12148	DDR4 RDIMM inversion cause incorrect MRS viewer
DDR12146	SW become lag after make analysis for all rows

DDR12145	SW crash when capturing trace after done run analysis for row usage
DDR12139	Wrong DDR4 RCW/BCW command decoding
DDR12127	BE triggered on RD / WR protocol violation but SW does not show it
DDR12124	BE shows RP violation but software doesn't show it
DDR12120	DDR4 RTS not function before recording option applied
DDR12107	Command truth table tooltip not entirely exposed for simultaneous command
DDR12104	ZQC protocol error captured in trace while RTS doesn't show any PV detected
DDR12102	Traffic summary jump not working with listing viewer and bank state viewer
DDR12101	DDR command color keep changing during scroll move selection in listing viewer
DDR12092	Search certain bank address been overridden
DDR12091	Could not load the default RTS preferences
DDR12065	Add support of Encoded quad CS mode in RDIMM/LRDIMM
DDR12018	Trigger on Clock Disable Behavior
DDR12016	System Memory Mapping when Row is unknown Address should display ???
DDR12015	FR- Add Memory Mapping into Trace Info report
DDR12014	Tool Tip needs anchor point on center of event
DDR11989	RTS detail view will automatically modified display view when run the RTS.
DDR11961	False protocol violation on MRS after RC commands
DDR11888	Row Usage Report is dog slow
DDR11665	FR - allow user to hide signals in wave form view
DDR11659	Need bitmap of trigger type - losing sales due to inability to debug false triggers
DDR11511	Update DR4 SPD decode to 0.7 version of spec dated May 30 2013
DDR11452	DDR4 LRDIMM Enhancements: BCW Decoding
DDR11409	Software fails to flag parity error
DDR11255	Add Follow MRS Settings in recording option information right panel.
DDR11221	LED color for Trigger is not match with information in user manual & QuickStart
DDR11204	Violation numbers should be unique regardless of DDR3/DDR4
DDR11185	Add RDIMM RCD Trigger support for DDR 4 in BE/Software
DDR11173	DDR4 - Cursors show 0 clocks in filtered trace
DDR10990	DDR4 -Down Binning Feature is making incorrect calculations
DDR10898	FR - Export/Save traffic summary to csv
DDR10897	FR- Timing Violation Analysis needs an Abort Button
DDR10895	FR - Add recording options to RTS Trace Info File
DDR10894	RTS shows Power Down percentage of 102%
DDR10791	DDR4 - False trigger on tPD violation
DDR10783	DDR4 - Invalid Timing violation: RTR_L during Read Training
DDR10760	DDR4 - tWTR-L values are incorrect
DDR10752	Prevent CAL change in Timing Violation Reanalysis
DDR10613	Add support for WCL parameter in timinig violations
DDR10612	Add support for Per DRAM Addressability (PDA) trigger and violations
DDR10309	DDR4 - Triggers incorrectly on READs with no ACT during MRS - MPR READS

DDR10039	Handle change of timing violations values in MPR State
DDR10020	Words truncated, overlapped and misaligned in Win Xp,7 and 8 at 125% and 150%
DDR9544	Handle exceptions on tMRD/tMOD
DDR9363	DDR4: timing violation v18 not able to be triggered
DDR7655	Advanced Search Capability (Sequential, BOOLEan, etc),

4.2. Release 2.30 Build 355 August 28, 2013

- This is version 2.30 of the DDR Protocol Suite.
- New Features
  - Address Map
  - Additional RDIMM Support
  - Row Hammer Report

- This release supports the following Teledyne LeCroy products:
  - Kibra 380
    - Firmware version 1.16
    - IOHub BusEngine version 2.86
    - Main 380 BusEngine version 2.58
  - Kibra 480
    - Firmware version 1.06
    - IOHub BusEngine version 2.86
    - Main 480 DDR3 BusEngine version 2.58
    - Main 480 DDR4 BusEngine version 2.58

- This release includes fixes for the following issues

Bug Id	Summary
DDR12093	Invalid Command Triggers
DDR12065	Add support of Encoded quad CS mode in RDIMM/LRDIMM
DDR12081	False protocol violation at end of DDR3 trace with ref clock
DDR11659	Need record of trigger type in Trace Info
DDR11635	Add address Inversion to RDIMM decoding
DDR11587	DDR 2.20 report an internal error during installation on the system with installed PCIe 6.70 b
DDR11574	Add DDR videos to CD-ROM
DDR11553	[CrossSync] items overlap in the topology view
DDR11511	Update DR4 SPD decode to 0.7 version of spec dated May 30 2013
DDR11452	DDR4 LRDIMM Enhancements: BCW Decoding
DDR11424	Color of memory controller fields is incorrect
DDR11423	Cannot select follow MRS after doing a clean install
DDR11409	Software fails to flag parity error
DDR11397	Last block of Ref-Clk only capture is lost, goto trig and zoom need work
DDR11340	Add Display License to Help menu, License is miss-spelt on page 25 of manual
DDR11282	no speed or warning is shown after refresh when clock is faster than the selected DIMM spee
DDR11279	RTS shown number of protocol violation in table after Kibra 380 get triggered

DDR11272	No handling message when try to open pdf link in Autorun while system don't has pdf applic
DDR11271	Autorun is not working in XP
DDR11261	Examples folder and its contents remain after uninstalled DDRSuite.
DDR11256	Unable to start recording with license for Ref Clk In only or DDR3 only
DDR11255	Add Follow MRS Settings in recording option information right panel.
DDR11245	Trace reopen still need analyzing process even after tmp folder been created
DDR11231	Overlay broken in bank state view by scrolling down and up.
DDR11230	SW crash if try to alter bank line position in Bank State view.
DDR11229	Marker and Cursor can't be dragged and scrolled in viewer.
DDR11228	Automation example failed in XP
DDR11217	Need some validations before RTS run / disable some items in recording option while RTS is r
DDR11216	Need to align last MRS view section horizontally
DDR11204	Violation numbers should be unique regardless of DDR3/DDR4
DDR11197	Does not support Tile Horizontal and Tile Vertical
DDR11193	RTS shows other rank activity that not selected in recording option
DDR11192	Uploading trace can't be cancelled
DDR11185	Add RDIMM RCD Trigger support for DDR 4 in BE/Software
DDR11168	Disable Goto in traffic summary
DDR10919	Traffic summary & Search window should organize MRS by MRS type (MRS2, MRS3...etc..)
DDR10900	FR - Add an Auto Cursor on violations.
DDR10899	FR - customer would like the time in ns added to the Violation tool tip and comment field
DDR10752	Prevent CAL change in Timing Violation Reanalysis
DDR10612	Add support for Per DRAM Addressability (PDA) trigger and violations
DDR10020	Words truncated, overlapped and misaligned in Win Xp,7 and 8 with display scaling medium
DDR9544	Handle exceptions on tMRD/tMOD
DDR9431	Software shutdown automatically if multiple traces were opened
DDR8384	Training Videos for DDR Kibra
DDR6981	Visually Connect Timing Errors with temporary highlighting of two events within the Timing V
DDR6980	Add Truth table entry to the tool tip for each command
DDR6654	Tool Tips for signal lines should detail which lines are in the active state

4.3. Release 2.20 Build 311 April 23, 2013

- This is version 2.20 of the DDR Protocol Suite.
- New Features
    - Automation API
    - Real Time Statistics Improvements
    - Bug Fixes

- This release supports the following Teledyne LeCroy products:
    - Kibra 380
        - Firmware version 1.16

    - IOHub BusEngine version 2.86
    - Main 380 BusEngine version 2.54
  - Kibra 480
    - Firmware version 1.06
    - IOHub BusEngine version 2.86
    - Main 480 DDR3 BusEngine version 2.54
    - Main 480 DDR4 BusEngine version 2.54

- This release includes fixes for the following issues

Bug Id	Summary
DDR6365	Add Pre/PreA to Valid Command , Min max and Average to the traffic summary
DDR6372	Add min max and avg time between Refresh to traffic summary performance
DDR6700	GUI tuning for foreign language
DDR7538	Kibra 380: bad CKE signal at 1600MT/s
DDR8219	Output of Clock Dividers on 380 system give false clocks to FPGA
DDR8326	Add the additional keyboard shortcuts to the shortcuts document
DDR9079	Overlapping viewer at the bottom if open bank state, traffic summary, timing calculator and MR Values view together
DDR9089	Crash during updating view
DDR9096	bug report and request option through Help Menu
DDR9165	De-selected analyzer still in the list for recording option.
DDR9226	License required error block the record process after deselect and reselect DDR Signal in rec option with No Rec Clk In feature license
DDR9317	Special right click Go to next command of this type (forward, back)
DDR9319	Read trigger unreliable in sequencer
DDR9363	DDR4: timing violation v18 not able to be triggered
DDR9366	Button Selection for overlay mode and zoombox is difficult to distinguish.
DDR9398	New markers not saved with save as range
DDR9408	traffic summary not include simultaneous MRS & ZQCL
DDR9431	software shutdown automatically if multiple traces were opened
DDR9433	software hangs if open multiple traces that need to be updated
DDR9436	Need performance improvement in BankState view
DDR9443	Display the upper 128 bytes of the SPD
DDR9473	some registry need to be removed during uninstall for proper Crossync Application list
DDR9483	Search function when you search for MRS
DDR9486	Typo in SPD dialog
DDR9488	F3 should be implemented for whatever recent find occurred: Traffic Summary, context sensitive signal find next, etc.
DDR9502	File Save/Open Issue on Japanese OS
DDR9546	Handle CAL mode setting in DDR4 command decoding
DDR9562	FR- Trigger on the clock going away or coming back
DDR9568	When RC command information not decoded when captured
DDR9569	RC commands need to be added to the Traffic Summary

DDR9587	Timing Violation Analysis not working
DDR9590	Keep MRS values across multiple traces
DDR9594	timing Violation reanalysis needs to allow user to modify the number of ranks
DDR9608	Extend Automation API to include new methods
DDR9643	Progress bars for multiple activities at same time doesn't work properly
DDR9671	Adjust Tooltip in Last MRS window
DDR9751	show DIMM Clock status in top bar
DDR9786	[SW][Crash] CrossSync Recording with 2 Kibra 380s always crashes at 1GB buffer
DDR9870	Expand violations list window if dialog is stretched.
DDR9879	Timing Calculator and Last MRS Values don't dock well with each other
DDR9911	"Unable to Start recording" notification in status bar did not disappear when button Start is ready
DDR9912	DES was not hidden
DDR9913	Occasional crash during view updated at 100% stage
DDR9931	DDR type not updated when loading Rec Options
DDR9948	Tooltip for MRS related parameters should indicate this when Follow MRS is set.
DDR9951	Glitch in viewer after the gap
DDR9952	Uninformative error message for Load Defaults
DDR9958	Prevent MRS Following selection on Kibra 380
DDR9972	Named the RTS Window according to each analyzer
DDR9973	Zoom Out broken in RTS graph display
DDR9975	SW proceed to recording after choose Cancel from Save-Discard-Cancel message
DDR9979	Two or more traces do not fit nicely in tile windows
DDR9987	Hyperlink for the latest software download is link to Teledyne LeCroy homepage
DDR9990	App Notes and Datasheet documents not saved in program directory
DDR9995	Add Restore to Factory Default to RTS preferences
DDR10020	Words truncated, overlapped and misaligned in Win Xp,7 and 8 with display scaling medium and large
DDR10039	Handle change of timing violations values in MPR State
DDR10110	FR: Add "save to current Recording Options" to Timing ReAnalysis screen
DDR10166	Additive Latency violations are calculated incorrectly
DDR10215	No power cycle needed message after updated BE
DDR10218	Update-Skip-Backup message appear after enable hide DES button
DDR10231	Start Recording button in Tool Bar disable on the first launch
DDR10243	Buffer Size and Trigger Position settings are missing in resolution 1024x768
DDR10255	RTS and Capture can't work at the same time
DDR10297	FR - Add the captured frequency to the displays
DDR10317	capture ref clock in only was no longer supported.
DDR10318	MRS information need correction in right pane
DDR10333	missing samples at end of listing view
DDR10358	Save/Load RTS Log

DDR10369	DDR4 Listing view moves Trigger packet off the screen when DES are hidden
DDR10515	Some timing violations should be calculated according to parameters defined for DIMM speed bin instead of current working speed
DDR10516	Add some highlights in memory settings section that separate settings updated by MRS from fixed values
DDR10572	Click Restore Factory Settings in Rec Option will change the name of autosave file
DDR10584	Could not apply setting change of Font, Font Size and Radix in Preferences
DDR10585	Crash after Restore Factory Setting in Preferences
DDR10595	Extra MRS number in information panel
DDR10604	Show actual cumulative counts in RTS display in addition to existing %
DDR10607	Wrong prerequisite free space needed in error message
DDR10609	Description and Calculation for V09: WRA to Valid Command is not valid
DDR10610	Add "CA Parity", "CRC error" Trigger, analysis for DDR4
DDR10611	The Timing Violations Texts is not consistent
DDR10613	Add support for WCL parameter in timing violations
DDR10614	Add checking validity of ECC check box state according to SODIMM interposer id
DDR10628	Add RDIMM RCD Decode support for DDR 4 in Software
DDR10646	remove the BG decoding from the Refresh command tool tips and in the comments field of the Listing view
DDR10651	View SYNC - Waveform view an Bank State view
DDR10652	Text Color of Chip Select row can be customized
DDR10654	K480: Distinguish between SORDIMM ECC and SOUDIMM ECC in GUI, add support in SW
DDR10752	Prevent CAL change in Timing Violation Reanalysis
DDR10760	DDR4 - tWTR-L values are incorrect
DDR10783	DDR4 - Invalid Timing violation: RTR_L during Read Training
DDR10791	DDR4 - False trigger on tPD violation
DDR10828	SW crash during upload after open trace information
DDR10829	SW crash on on cascading mode
DDR10833	RTS: RD, WR, PD, and SR - Want separate counter for duration (# of clocks) and instances (number of occurrences)
DDR10834	Total counts of events and durations should be maintained by Rank
DDR10835	RTS: allow user to define # slots in channel so % calculations will scale
DDR10836	RTS: Context sensitive Right Click menu to select the Ranks displayed.
DDR10837	RTS: Add tooltips explaining calculations
DDR10843	Analysis progress only 3% and opens trace incomplete because of clock count overflow
DDR10852	SW crash if power off Kibra after run RTS at least once
DDR10869	Clock line in waveform view will disappear if user click on other line or try to rearrange the lines
DDR10870	SW hang and crash after hide DES in DES only trace
DDR10881	Support new block for MRS settings
DDR10990	DDR4 -Down Binning Feature is making incorrect calculations

DDR10999	DDR4 - Trigger position off by more than 8 clocks
DDR11000	DDR4 - Bank Groups above BG1 do not show in Traffic Summary
DDR11002	Add MRS 4, 5, 6 triggers
DDR11004	DDR4 - RDIMM trace showing MRS7 commands. need to be decoded
DDR11058	FR - Advanced Triggering when selecting a Command by default set CS to "ANY"
DDR11180	Error when trying to capture full buffer trace.
DDR11183	Trig on Reset on some machines causes Precision Trigger Timestamp to remain at 0
DDR11185	RCD Trigger added.
DDR11194	Crash if make recording while hide DES enabled

4.4. Release 2.11 Build 256 January 22, 2013

- This is version 2.11 of the DDR Protocol Suite.
- New Features
    - Bug Fixes

- This release supports the following Teledyne LeCroy products:
    - Kibra 380
        - Firmware version 1.15
        - IOHub BusEngine version 2.86
        - Main 380 BusEngine version 2.50
    - Kibra 480
        - Firmware version 1.05
        - IOHub BusEngine version 2.86
        - Main 480 DDR3 BusEngine version 2.50
        - Main 480 DDR4 BusEngine version 2.50

- This release includes fixes for the following issues

Bug Id	Summary
10285	Out-of-phase captures causing false protocol violations
10217	Crash if make recording while hide DES enabled
10194	Slot 2 SODIMM Chip Selects being decoded as active on every clock
9971	SW crashed after RTS exported to .cvs

4.5. Release 2.10 Build 253 October 3, 2012

- This is version 2.10 of the DDR Protocol Suite.
- New Features
    - Real-Time Statistics
    - Enhanced DDR4 features
    - Hide DES/Nop
    - Windows 8 support
    - Bug Fixes

- This release supports the following Teledyne LeCroy products:
  - Kibra 380
    - Firmware version 1.15
    - IOHub BusEngine version 2.86
    - Main 380 BusEngine version 2.46
  - Kibra 480
    - Firmware version 1.05
    - IOHub BusEngine version 2.86
    - Main 480 DDR3 BusEngine version 2.46
    - Main 480 DDR4 BusEngine version 2.46

- This release includes fixes for the following issues

Bug Id	Summary
DDR9590	Keep MRS values across multiple traces
DDR9443	Display the upper 128 bytes of the SPD
DDR9486	Typo in SPD dialog
DDR9840	Decode SPD data for bytes "65-111" according to DIMM type
DDR9797	Kibra 480 DDR4: Triggering is not working properly
DDR9706	Shrink rec opts dialog to fit all controls on 768 line high screen
DDR9638	Invalid Command violation marked on wrong command
DDR9603	Add color hint as to which parameters are effected by MRS when MRS following is selected
DDR9586	CS on the second slot is off by one clock compared to all other signals
DDR9585	DDR3 Invalid Command flagged on most SRX
DDR9583	V05 violations being calculated on <= instead of less than
DDR9582	'Export to CSV' is super slow when there is a lot of MRS command
DDR9573	Handle MPR state in DDR4
DDR9545	tXPDLL isn't applicable in DDR4
DDR9543	WR Preamble has effect on tWR, tWTR in addition to CWL in DDR4
DDR9542	Need Enhancement on tXS/tXSDLL for DDR4/DDR3
DDR9541	Add Fine Granularity setting to memory controller settings in DDR4 recording option
DDR9502	File Save/Open Issue on Japanese OS
DDR9497	Invalid MRS tooltip for mirrored address
DDR9496	Different signals between Kibra 480 & Kibra 380
DDR9489	Trace Summary shows 16 banks being active
DDR9450	Read/write row address was shifted for row address count not equal 16
DDR9446	Different clock width at start of filtered trace
DDR9437	Complete violation detection engine in Follow MRS mode for DDR4
DDR9435	Wrong tooltip for MRS in mirrored UDIMM
DDR9420	Glitch in showing clock count for cursor x-y diff
DDR9419	Some Issues with Save Partial in 4G buffer trace [slow to start save process and wrong range]
DDR9407	Incorrect trace analyzing in full buffer memory with filter out selected
DDR9398	New markers not saved with save as range
DDR9393	Shows invalid violation for ACT when both CS0 and CS1 are selected

DDR9389	Wrong PDE and some wrong violations after HUT reset
DDR9378	List down JEDEC parameter that impact by "Follow MRS Settings"
DDR9371	RC commands were filtered out with DES/NOP filter out option
DDR9360	"Update file, backup old versions" options return message "Saving trace file failed"
DDR9350	DDR4 timing violations do not trigger : tRRD-s and tRRD-l
DDR9320	Auto Jedec parameters for DDR4 are not accepted by SW
DDR9314	Bus Engine Latency not being used in timestamps for Cross Sync
DDR9297	Incorrect rank information in tooltip for violation that happens in gap
DDR9290	Trace information incorrect for Kibra 480 capture
DDR9111	Need "Restore Factory Settings", "Save as Default" and "Load Default" for Preferences files
DDR9107	Extra active banks number in information pane
DDR9096	Bug report and request option through Help Menu
DDR9086	Wrong time gap detection in traces with big filters
DDR8898	Timing Violation Trigger window should expand to fill window when window is streched
DDR8409	Add WAITING_FOR_SYNC_REC status as per CATC Sync spec 1_2
DDR8233	Precision Timestamp off after reset
DDR8087	Verify forward compatibility catcher for files made with future DDR versions
DDR6619	Strange behavior in PDE & SRE
DDR6385	Listing View hide DES
DDR9649	Software crashes in timing violation re-analysis becuase of issue in iterator HasNext method
DDR9509	Convert .ddrt file to .ddrx file

4.6. Release 2.01 Build 212 July 20, 2012

- New Features
    - Bug Fixes

- This release supports the following LeCroy products:
    - Kibra 380
        - Firmware version 1.14
        - IOHub BusEngine version 2.86
        - Main 380 BusEngine version 2.43
    - Kibra 480
        - Firmware version 1.04
        - IOHub BusEngine version 2.86
        - Main 480 DDR3 BusEngine version 2.42
        - Main 480 DDR4 BusEngine version 2.42

- This release includes fixes for the following issues

Bug Id	Summary
DDR9370	RC command trigger was offset by one
DDR9327	Traffic summary navigation quits working after saving file

DDR9349	DDR4 timing violation v12 not able to be triggered
DDR9328	Bank State View occasionally not working
DDR9323	Kibra 480 DDR3 Slot 2 Protocol/Timing Violation
DDR9320	Auto Jedec parameters for DDR4 are not accepted by SW
DDR9318	Strange Behavior in Sequencer Signal Selector
DDR9316	DDR4 Read and Write triggers not working
DDR9309	Crash if read SPD from Kibra 380 UDIMM interposer with ID:0xFF
DDR9304	Fresh install win7 default path was using XP path
DDR9300	Kibra 480 not capture 1600MTs properly
DDR9292	Summary report jump link was too slow in specific filtered trace
DDR9234	Alert message for File IO error when making RefClk-only trace or DDR Signals trace
DDR9223	Cross-Sync - Failed to launch DDR Protocol Suite through CrossSync Control Panel
DDR9219	Update Dialog not indicating "BAD" when current and required versions don't match
DDR9208	Can't open pdf for Kibra 380/480 Getting Started in autorun installer
DDR9204	SPD reading only display the reading from interposer slot 1 for both module if both slot attached different DIMM spec
DDR9202	Display Inteporser or slot information in SPD Information interface
DDR9182	One of the status bars is hidden when running in cascade mode.
DDR9172	Sync traces after captured even though synced check box not selected yet
DDR9164	Crash when try to move marker very far from its initial point.
DDR9160	SaveAs is shown as one word in application
DDR9142	Failed to read SPD data for UDIMM in Kibra 480.
DDR9126	Application crashed when to re-open very small ddrt. trace file
DDR9120	Auto init Adsantecs so user does not have to do it with menu selections (Kibra 480)
DDR9119	Change MR to MRS in all locations.
DDR9117	Need to Capture 1st MRS after DIMM clock starts on Kibra 480
DDR9116	Add Auto- Reset code to 480 systems
DDR9105	Prevent system entering sleep or hibernation mode while application still loading the trace
DDR9104	Performance Enhancement for Analyzing Trace process.
DDR9097	Clean up Basic Settings tab GUI
DDR8701	Unable to read the SPD with the latest SODIMM Interposer
DDR8637	Add ability to trigger on RDIMM Commands
DDR8448	Improve the clock counter for very big trace
DDR8427	New DDR Trace File is option in the New Documents menu of Windows Desktop
DDR8404	Synced Trace Files button should remain selected whenver the traces have been marked as synce dialog
DDR8255	Need to add some enhancements for defining trigger conditions for sequencer
DDR8233	Precision Timestamp off after reset
DDR8154	Bank state view cannot be docked at bottom of screen
DDR8087	Verify forward compatibility catcher for files made with future DDR versions
DDR8026	Add JEDEC tables for 2133

DDR8025	FW returns Interposer 1's SPD values for Interposer 2 when no Interposer 2 plugged in.
DDR6787	Timestamp calculations is not correct with new hardware phy for power-down/self-refresh traces

4.7. Release 2.00 Build 199 June 13, 2012

- This is version 2.00 of the DDR Protocol Suite.
- New Features
  - Kibra 480 Support
  - DDR4 Support (Beta)
  - SPD Info Display (on supported interposers)
  - Signal Search (back & forward)

- This release supports the following LeCroy products:
  - Kibra 380
    - Firmware version 1.12
    - IOHub BusEngine version 2.86
    - Main 380 BusEngine version 2.37
  - Kibra 480
    - Firmware version 1.03
    - IOHub BusEngine version 2.86
    - Main 480 DDR3 BusEngine version 2.37
    - Main 480 DDR4 BusEngine version 1.02

- This release includes fixes for the following issues

Bug Id	Summary
DDR8953	Bank de-selection does not work
DDR8961	Export of Large files with filtered traffic crashes
DDR6771	Refresh rates in partial report not accurate
DDR8385	Ability to add separate signals (ADD LINES option) when you click on left panel of the waveform vie
DDR9064	RC Trigger option appear in UDIMM type after change back DDR Protocol from DDR3 to DDR4
DDR8044	Add Shortcut of CTRL K to drop Markers
DDR8925	Recording Options not being retained
DDR8638	New timing violation analysis causes application crash
DDR8325	Recording Options Summary needs "Use for current recording" button like other apps
DDR8274	Some drawing glitches in waveform view in filtered traces
DDR8261	Shortcut "Shift + Scroll Wheel Up/Down" not working
DDR8834	Disable Mirrored check box for Non UDIMM selections
DDR8835	Make RDIMM its own selection in recording options
DDR8884	Software crash with full buffer when filter selected
DDR8404	Synced Trace Files button should remain selected whenver the traces have been marked as synced
DDR8878	Export to .CSV will either crash the application or hang the application
DDR6931	Need a quick timing method in Listing view.
DDR9012	Advanced Triggers - READ or WRITE will not trigger if other parameters are selected
DDR7126	Show Chip Select in Timing Error Dialog during REF operations

DDR8524	DDR sw crashes upon completion of uploading in two units configuration with clock and data captured
DDR6890	Centered selection point "drifts away" when zooming in.
DDR8025	FW returns Interposer 1's SPD values for Interposer 2 when no Interposer 2 plugged in.
DDR6647	Need "Load Defaults" for Preferences file
DDR8277	Change Time ruler strategy in filtered traces
DDR7908	Add RCD commands to Traffic Summary and Search
DDR8276	Showing tooltip for filtered area to describe filter details
DDR8417	When I select go to time in the search, please add time intervals in ms, ns,ps, fs, ms us
DDR8427	New DDR Trace File is option in the New Documants menu of Windows Desktop
DDR7654	Search for Signal Transition
DDR8450	Legend in Bank State view gets lost
DDR8303	Sequence trigger info in right pane of recording options is incosistent with sequence trigger values
DDR8914	Remove CS 2 & 3 & 6 & 7 for SODMM captures, Addr 16 & 17 for DDR3 captures
DDR8485	Comments in the Markers are not shown in the listing View
DDR8275	Showing tRASMax, tREFI violations when they happen during gap/filtered area
DDR6377	At any point in trace show last known MRS values (480 only)
DDR6375	Ability to modify JEDEC timing paramters dynamically based on latest MRS (SW & BE)
DDR8899	SPD reads on some DIMMS misses first byte
DDR6216	Support for Mirrored UDIMM
DDR8278	Adding gap support to bankstate view
DDR8701	Unable to read the SPD with the latest SODIMM Interposer
DDR8637	Add ability to trigger on RDIMM Commands
DDR8514	Power Down Exit fast/Slow can be programed per rank
DDR8510	Cascaded capturing with one of units not licensed for ref clock caused a crash
DDR8513	Unplugging one of cascaded units caused a crash
DDR8469	Protocol and Timing violations are not showed in Listing view
DDR8543	Flexnet agent not being installed: no auto-update. EULA .html file not saved in program folder.
DDR8512	updating two cascaded Kibra units caused the sw to crash
DDR8255	Need to add some enhancements for defining trigger conditions for sequencer
DDR6068	Optimize Analysis Performance - Save/Load data model in file
DDR8577	Navigation > Find is not displaying all commands
DDR8412	Simultaneous SRE not trigger
DDR7966	Need to implement move Marker API in CrossSync Agent
DDR6366	Customer wants to be able to tell software which Violations to flag
DDR6630	Power cycling Kibra in CrossSync configuration with IOTA causes DDR to crash
DDR6550	Unplugging Kibra in CrossSync configuration caused a crash
DDR8478	DDRSuiteOverview.htm for cd installation still showed USB as title
DDR8444	Bank State Viewer Row Address always 0x0 at beggining of trace for Chip Select 0
DDR8448	Improve the clock counter for very big trace
DDR8298	[FR] scroll Left/Right by one Time Division, move selection for trace with filtering

4.8. Release 1.20 build 153 February 2, 2012

- New Features
  - Bank State View
  - Filter DES and NOP in Capture and Waveform View
  - Sequential Triggering
  - Includes CrossSync 2.25
  - Cascading Kibras
  - Back and Forward buttons for Navigation

- This release supports the following LeCroy products:
  - Kibra 380
    - Firmware version 1.11
    - IOHub BusEngine version 2.86
    - Main BusEngine version 2.28

- This release includes fixes for the following issues

Bug Id	Summary
6364	Ability to Export Listing View to Text and CSV
6557	Navigation Bar shows incorrect values on >2GB Buffer captures
6573	Implement Filter-Out feature in SW and BE
6772	Fix default load and save directory paths
6930	cursors need to be added to the Coarse Navigation bar
6979	Listing view of Simultaneous commands
6989	some text overlap on marker preferences
6997	Rec options selection should say UDIMM/RDIMM
7027	Crash when scrolling on Windows Server 2008
7028	wrong timing unit with "relative to trigger point"
7032	default value for tRCD & tRP wrong for certain CL values
7043	Full buffer trace results in empty capture
7050	Invalid violation flagged
7052	Status message after partial save show incorrect path
7066	Incorrect signals captured due to out of sync interposers
7080	In some cases, we need to ignore decoding of A15
7081	A16 and A17 signals shown incorrectly
7093	SW hangs after 14 hours
7103	Trigger Marker in Listing view should match waveform
7125	Add Hyperlink to the timestamps shown in Timing Error Pop Up window
7154	CrossSync with IOTA+PCIe: only first recording session works
7170	Precise timestamp has incorrect value
7193	Update timing for t_rfc for 4Gb parts is 260 ns as per new JEDEC update (was 300 ns)
7200	Add Trigger (out) on Parity Error line
7279	Handling commands with more than one clock duration in violation detection
7313	CATC Sync Triggering broken

7328	Mouse wheel scrolling in Navigator tool is counter-intuitive
7338	Display via SPD EPROM reading (newer Interposers only)
7447	Sequential Trigger Support
7521	Enter Key Close Marker Edit dialog
7522	RD RDA incorrectly flagged as Protocol error after MRS
7594	Enhance Command Trigger to support MR Select 0 - 3
7646	Trigger on signal edge
7665	Support RCD for RDIMM
7670	Search for Refresh Waveform does not center on the Refresh command
7674	Kibra didn't trigger on REF to REFi violation
7701	Synchronize 2-4 trace files that were recorded with Cascading
7778	Traffic Summary Navigation Hangs then crashes App
7779	Protocol Violations missing markers
7792	No trigger found when recording in RefClk Only Mode.
7797	Cannot expand Address, BA or Command values when using Overlay Mode
7913	MRS commands with BA2 active should be flagged as violation or decoded differently
8032	Missing last few samples of RefClk Only capture
8053	Clicking Cancel on Saving of a Modified Trace during Application Exit Closes the Application
8072	Strange dialog when selecting Save As or Load in Waveform Preferences
8074	Make ZoomBox mode selection persistent
8087	Prevent crash when attempting to load files from future releases.
8118	Search or summary for MRS on certain BA or address
8147	Cannot record new trace if saved trace is open
8148	Bank State View WRA and RDA should still show command color

4.9. Release 1.01 build 84 August 10, 2011

- This is version 1.01 of the DDR Protocol Suite.
- New Features
    - Zoom Box mode in Waveform View
    - Overlay signals on each other
    - Snap to Edge
    - Low Power DIMM modes supported

- This release supports the following LeCroy products:
    - Kibra 380
        - Firmware version 1.08
        - IOHub BusEngine version 1.75
        - Main BusEngine version 2.12

- This release includes fixes for the following issues

Bug Id	Summary
DDR6977	Simultaneous commands still create violations in trace

DDR6929	Zoom Box needs to zoom in to max
DDR6928	Make the Left & Right Scroll areas more noticeable
DDR6917	Need to add ACTIVATE Command to the USER Defined Triggers
DDR6890	Centered selection point "drifts away" when zooming in.
DDR6880	Inconsistent Decode of PDX
DDR6878	No Trigger on Read
DDR6862	Trigger on Read not working
DDR6807	Applying incorrect license gives no indication to user of failure.
DDR6791	Waveform View Cursors glitch
DDR6778	Remove Time Base Selection from GoToTime dialog
DDR6777	SW not refresh BE info after auto update
DDR6774	Delta value bar between Cursors behaves badly near top (maybe bottom)
DDR6772	change recording option save path
DDR6765	Snap to Edge should be disabled when Shift-clicking Mouse
DDR6764	Scroll Performance Enhancement
DDR6756	Wave form View Grab and drag horizontal movement broken
DDR6748	GOTO absolute timestamp returns value out of range
DDR6747	search Backwards starts from end of trace file instead of current location
DDR6719	Search enhancement (show only existing items)
DDR6679	SW Crash when opening Sample File from the file open menu
DDR6677	empty about box under analyzer devices
DDR6676	cannot launch cross sync panel from DDR software
DDR6669	Scrolling should not change time selection
DDR6668	Strange selection movement when scrolling using Left Scroll Button at beginning of trace.
DDR6667	Waveform View Selection via Click should operate in Zoom Box mode
DDR6663	crash while changing radix in lines properties
DDR6650	Unable to dock Traffic summary in lower half of window.
DDR6645	Right Click to Paste text into "GO TO TIMESTAMP" dialog shows jumbled characters in Right Clic menu
DDR6638	LRDIMM Decoding
DDR6631	Search for - chip select & bank address
DDR6615	Analyzer flags every read or write with auto-precharge (RDA)
DDR6608	minor fix on GOTO under navigation menu
DDR6606	false Timing Violation for V13, V16 & V22 plus V14 & V23
DDR6603	Automatically set Event Trigger mode when Triggers are selected/enabled in GUI.
DDR6601	Add Arrow keys (etc), as per our Packet Selection guidlines
DDR6596	DDR suite crash after DUT power off
DDR6594	TV11 (tREFI) miss fire
DDR6582	add A11 for column address in read/write trigger
DDR6578	All CKE's assumed to operate identically. Need to handle Independent CKE signalling.
DDR6572	Listing View - Add ability to Combine all address pieces (RA, CA, BA, CS) into full physical addres
DDR6545	Occasional BE failure
DDR6537	Enable Drag n Drop to the application
DDR6512	some lines can't be removed
DDR6507	copy/paste not working
DDR6506	Trigger marker is off by up to 8 clocks

DDR6501	Marker Tool tips should show the comments
DDR6500	Need to allow time configuration in ps, ns, us or clocks for user entry
DDR6478	Waveform view: overlay signal lines
DDR6435	Use BE Latency Value for calculations
DDR6384	Listing view should show Row Address with the Column Address for read and write
DDR6383	Need abiltiy to stop/abort/Flush processing similar to stop/abort/flush upload
DDR6378	When searching - drop a position selection at the location result.
DDR6370	Need "Snap to Edge" for laying down markers and cursors
DDR6341	Add Search Hot keys - <CTRL-F> Find & Find-Next button <F3>
DDR6300	Units of time measurement are not shown in WaveForm view and in time stamp fields in Listing view for large time values
DDR6212	DDR CHG #32 Traffic Summary title should change to note when displaying full trace vs between markers
DDR6208	DDR Chg # 22 Add refresh rates to the performance screen
DDR6178	DDR Chg # 6 Add 4 simple cursors with timing values
DDR6176	DDR Chg # 2 Add draw-box method for zooming in on waveform view.
DDR6175	Colors of signals/groups in List View do not match Headers in Waveform View

4.10. Release 1.00 build 56 June 28, 2011

- This is version 1.00 of the DDR Protocol Suite.
- New Features
  - Capture and Display DDR Control Signals

- This release supports the following LeCroy products:
  - Kibra 380
    - Firmware version 1.07
    - IOHub BusEngine version 1.75
    - Main BusEngine version 2.06

- This release includes fixes for the following issues

Bug Id	Summary
	N/A for first release

5. Support

Online Download

Please periodically check Teledyne LeCroy Protocol Solutions Group's web site for software updates and other support related to this product.
Software updates are available to those users with current Maintenance Agreements.

Online Support

Web: teledynelecroy.com
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